

WHAT IS CLAIMED IS:

1. A member for a circuit board, comprising:  
an electrically insulating material; and  
5 a mold release film that is provided on at least one side of the electrically insulating material,  
wherein the mold release film contains or is coated with a heat absorbing substance having a heat absorbing property.
- 10 2. The member according to claim 1,  
wherein the heat absorbing substance is a metal hydrate.
3. The member according to claim 2,  
wherein the metal hydrate is at least one selected from the group  
15 consisting of: aluminum hydroxide, magnesium hydroxide, dawsonite, potassium aluminate, calcium hydroxide, zinc borate, kaolin clay, and calcium carbonate.
4. The member according to claim 1,  
20 wherein the mold release film is formed of a film of a thermoplastic resin or a thermosetting resin.
5. The member according to claim 4,  
wherein the thermoplastic resin is at least one selected from the  
25 group consisting of: polyethylene naphthalate, polyphenylene sulfite, polyethylene terephthalate, polypropylene, and polyphenylene oxide.
6. The member according to claim 4,  
wherein the thermosetting resin is at least one selected from the  
30 group consisting of: epoxy resin, phenol resin, polyimide resin, polyester resin, silicone resin, and melamine resin.
7. The member according to claim 1,  
wherein a layer containing a thermosetting resin further is  
35 provided in the mold release film.
8. The member according to claim 7,

wherein the thermosetting resin layer of the mold release film contains a heat absorbing substance.

9. The member according to claim 8,

wherein the heat absorbing substance contained in the thermosetting resin layer of the mold release film is at least one selected from the group consisting of: aluminum hydroxide, magnesium hydroxide, dawsonite, potassium aluminate, calcium hydroxide, zinc borate, kaolin clay, and calcium carbonate.

10. The member according to claim 1,

wherein the mold release film further includes a resin layer containing a heat absorbing substance as well as a thermosetting resin layer and a film layer.

11. The member according to claim 10,

wherein the resin layer containing the heat absorbing substance is formed from at least one type of metal hydrate selected from the group consisting of: aluminum hydroxide, magnesium hydroxide, dawsonite, potassium aluminate, calcium hydroxide, zinc borate, kaolin clay, and calcium carbonate.

12. The member according to claim 1,

wherein the electrically insulating material is formed of a composite material of a woven fabric or a nonwoven fabric containing organic fibers or inorganic fibers as a main component and a thermosetting resin that is impregnated into the woven fabric or the nonwoven fabric and brought to a semi-cured state.

13. The member according to claim 12,

wherein the composite material contains an inorganic filler.

14. The member according to claim 1,

wherein an endothermic temperature of the heat absorbing substance is not lower than a softening point of a thermosetting resin impregnated into the insulating material.

15. The member according to claim 1,  
wherein a heat absorbing substance having a heat absorbing  
property is present in an amount of more than 0 mass % to not more than 60  
mass % with respect to the mold release film.

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16. The member according to claim 8,  
wherein a metal hydrate in an amount in a range of more than 0  
mass % to 95 mass % is mixed into the thermosetting resin.

10 17. A method of manufacturing a member for a circuit board,  
comprising:

allowing a mold release film to adhere to at least one side of a  
composite material (hereinafter, referred to as a prepreg) by heating and  
pressing, the prepreg being formed of an electrically insulating material  
15 made of a core material and a thermosetting resin that is impregnated into  
the core material and brought to a semi-cured state, the mold release film  
containing or being coated with a heat absorbing substance having a heat  
absorbing property,

20 wherein the heating is performed at a temperature not lower than a  
softening point of the prepreg and not higher than an endothermic  
temperature of the heat absorbing substance.

18. A method of manufacturing a circuit board, comprising:

25 laminating a mold release film on at least one side of a composite  
material (hereinafter, referred to as a prepreg), the prepreg being formed of  
an electrically insulating material made of a core material and a  
thermosetting resin that is impregnated into the core material and brought  
to a semi-cured state, the mold release film containing or being coated with  
a heat absorbing substance having a heat absorbing property;

30 forming through-holes in predetermined positions in a member for  
a circuit board using a laser, the member being obtained by allowing the  
mold release film to adhere to the prepreg by heating and pressing at a  
temperature not lower than a softening point of the prepreg and not higher  
than an endothermic temperature of the heat absorbing substance;

35 filling the through-holes with a conductive paste;

taking out the prepreg by peeling the mold release film off of the  
member in which the conductive paste is filled;

placing metal foil on each surface of the prepreg and subsequently performing heating and pressing so that a laminate is formed by thermocompression bonding; and

5       forming a circuit pattern on the laminate so as to obtain a double-sided circuit board.

19.       The method according to claim 18,  
          wherein process steps of forming the laminate and forming the circuit pattern on a surface of the laminate are performed at least twice  
10       repeatedly so as to obtain a multilayer circuit board.

20.       A method of manufacturing a circuit board, comprising:  
          laminating a mold release film on at least one side of a composite material (hereinafter, referred to as a prepreg), the prepreg being formed of  
15       an electrically insulating material made of a core material and a thermosetting resin that is impregnated into the core material and brought to a semi-cured state, the mold release film containing or being coated with a heat absorbing substance having a heat absorbing property;

          forming through-holes in predetermined positions in a member for  
20       a circuit board using a laser, the member being obtained by allowing the mold release film to adhere to the prepreg by heating and pressing at a temperature not lower than a softening point of the prepreg and not higher than an endothermic temperature of the heat absorbing substance;

          filling the through-holes with a conductive paste;  
25       taking out the prepreg by peeling the mold release film off of the member in which the conductive paste is filled;

          separately preparing at least two circuit boards that have at least two circuit patterns;

          alternately arranging the circuit boards and a number of the  
30       prepregs, the number of the prepregs exceeding a number of the circuit boards by one;

          further placing metal foil in an outermost position and subsequently performing heating and pressing so that a laminate is formed;  
and

35       forming a circuit pattern on the laminate so as to obtain a multilayer circuit board.